WHAT IS CLAIMED IS:

1. An image processor for compensating gradation of image data, comprising:

domain judging means for judging a domain to which said image data belongs in order to output the result of judgment;

coefficient calculating means for outputting a compensation coefficient to compensate a pixel value of said image data based on said result of judgment; and

compensating means for compensating a pixel value of said image data depending on said compensation coefficient.

2. An image processor as claimed in claim 1, wherein said domain judging means outputs said result of judgment by detecting a characteristic amount indicating the characteristic of the predetermined range in the vicinity of said image data and said coefficient calculating means outputs said compensation coefficient corresponding to said characteristic amount.

3. An image processor as claimed in claim 1, wherein said domain judging means is a low-pass filter for extracting the low frequency element of said image data and said coefficient calculating means generates said compensation coefficient corresponding to said low frequency element.

4. An image processor as claimed in claim 1, wherein said domain judging means includes quantizing means for quantizing said image data and a low-pass filter for extracting a low frequency element than the image data quantized by said quantizing means, and said coefficient

calculating means generates said compensation coefficient corresponding to said low frequency element.

5. An image processor as claimed in claim 1, wherein said domain judging means includes a plurality of low-pass filters respectively extracting low frequency elements of said image data and signal combining means for generating a combining signal of 1 based on the low frequency element output from a plurality of said low-pass filters and said coefficient calculating means generates said compensation coefficient based on said combining signal.

6. An image processor as claimed in claim 5, wherein said signal combining means generates said combining signal using a weighted mean of low frequency elements output from a plurality of said low-pass filters.

7. An image processor as claimed in claim 5, wherein said signal combining means generates said combining signal through weighted addition of the low frequency elements output from a plurality of said low-pass filters using the preset weighting coefficient.

8. An image processor as claimed in claim 1, wherein said domain judging means includes a plurality of low-pass filters respectively for extracting the low frequency element of said image data and said coefficient calculating means includes a partial coefficient calculating means for respectively generating a compensation coefficient from the low frequency elements output from a plurality of said low-pass filters and coefficient combining means for

generating said compensation coefficient based on said compensation coefficient.

9. An image processor as claimed in claim 8, wherein said coefficient combining means generates said compensation coefficient with a weighted mean of said compensation coefficients.

10. An image processor as claimed in claim 8, wherein said coefficient combining means generates said compensation coefficient by weighted addition of said compensation coefficients corresponding to the preset weighted coefficient.

11. An image processor as claimed in claim 1, wherein said compensating means compensates for pixel value of said image data by multiplying said compensation coefficient with the pixel value of said image data.

12. An image processor as claimed in claim 1, wherein the number of bits of image data output from said compensating means is reduced in comparison with the number of bits of the input image data.

13. An image processor as claimed in claim 1, wherein said image data has been obtained by sampling, with the predetermined frequency, the signal in which the amplitude-modulated color signal is superimposed sequentially to the luminance signal.

14. An image processor as claimed in claim 1, wherein said image data has been obtained by sampling the color signal with the predetermined frequency.

15. An image processor as claimed in claim 1, wherein said image data has been obtained by sampling the luminance signal and color difference signal with the predetermined frequency.

16. An image processing method for compensating for gradation of image data comprising:

domain judging process to output the result of judgment by judging a domain to which said image data belongs;

coefficient calculating process to output the compensation coefficient for compensating for the pixel value of said image data on the basis of said result of judgment; and

compensating process to compensate for the pixel value of said image data corresponding to said compensation coefficient.

17. An image processing method as claimed in claim 16, wherein said domain judging process outputs said result of judgment by detecting a characteristic amount indicating the characteristic of the predetermined range in the vicinity of said image data and said coefficient calculating process outputs said compensation coefficient corresponding to said characteristic amount.

18. An image processing method as claimed in claim 16, wherein said domain judging process extracts the low frequency element of said image data and said coefficient calculating process generates said compensation coefficient corresponding to said low frequency element.

19. An image processing method as claimed in claim 16, wherein said domain judging process includes a quantizing process to quantize said image data and a process to extract the lower frequency element than the image data quantized by said quantizing process and said coefficient calculating process generates said compensation coefficient corresponding to said low frequency element.

20. An image processing method as claimed in claim 16, wherein said domain judging process includes a low frequency element extracting process to extract a plurality of low frequency elements of said image data in different frequency bands and a signal combining process to generate a combining signal based on a plurality of said low frequency elements, and said coefficient calculating process generates said compensation coefficient based on said combining signal.

21. An image processing method as claimed in claim 20, wherein said signal combining process generates said combining signal with a weighted mean of a plurality of said low frequency elements.

22. An image processing method as claimed in claim 20, wherein said signal combining process generates said combining signal with weighted addition of a plurality of said low frequency elements using the preset weighting coefficient.

23. An image processing method as claimed in claim 16, wherein said domain judging process extracts a plurality of low frequency elements of said image data in different

frequency bandwidths and said coefficient calculating process includes a partial coefficient calculating process to generate compensation coefficient from a plurality of said low frequency elements and a coefficient combining process to generate said compensation coefficient based on said compensation coefficient.

24. An image processing method as claimed in claim 23, wherein said coefficient combining process generates said compensation coefficient with a weighted mean of said compensation coefficients.

25. An image processing method as claimed in claim 23, wherein said coefficient combining process generates said compensation coefficient with the weighted addition of said compensation coefficients using a preset weighting coefficient.

26. An image processing method as claimed in claim 16, wherein said compensating process compensates for the pixel value of said image data by multiplying said compensation coefficient with the pixel value of said image data.

27. An image processing method as claimed in claim 16, wherein the number of bits of image data obtained by said compensating process is reduced in comparison with the number of input bits.

28. An image processing method as claimed in claim 16, wherein said image data has been obtained by sampling, with the predetermined frequency, the signal in which the amplitude-modulated color signal is sequentially

superimposed on the luminance signal.

29. An image processing method as claimed in claim 16, wherein said image data has been obtained by sampling the color signal with the predetermined frequency.

30. An image processing method as claimed in claim 16, wherein said image data has been obtained by sampling the luminance signal and color difference signal with the predetermined frequency.